

4.4.2 Dispersion by Air Currents. Particles of hygienic significance are usually dispersed by air currents.

4.5 Types of Air Motion. Stray or secondary air motion around industrial processes and operations may be classified into four major types:

(1) Motion or energy fundamental to the machine or process (viz, fan action of a rotating wheel, escape of air from containers as they are filled, convection currents and air expansion over heated surfaces)

(2) Forces incidental to the operation of the machine or process (viz, air escaping past worn pistons in pneumatic tools or from badly placed exhaust ports, and vibration of machinery)

(3) Drag of air by large particles dynamically projected from their source (viz, large particles dispersed from a surfacing machine carrying fine particles in their wake)

(4) External forces (viz, air motion created by nearby machinery operation and by workers; natural convection currents caused by temperature changes; and air currents from nearby doors or windows, fans or heaters)

4.6 Control of Air Motion. The primary purpose of an exhaust hood is to confine or capture contaminated air, or both, rather than to remove the contaminating material from the air. To prevent the dispersion of atmospheric impurities, it is necessary to eliminate or reduce stray or secondary air currents and to develop primary or control air currents of the proper magnitude and direction about the zone of dispersion. Before the actual design of an exhaust hood is undertaken it is essential for

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